

REMARKS

The Office Action dated February 12, 2009, has been received and carefully reviewed. The preceding amendments and the following remarks form a full and complete response thereto. Claims 1 and 3, the independent claims, and dependent claim 6, 9, and 10 have been amended. Claims 15-20 are newly presented. No new matter is added. Claims 1-20 are pending in this application and are submitted for consideration.

Interview Summary

Applicants and their representatives thank the Examiner and Supervisory Examiner for the interview conducted May 13, 2009 with Applicants' representatives. Applicants concur with the Interview Summary prepared by the Office and mailed May 18, 2009 as to the substance of the interview.

New Claims

Claim 15 is newly presented and finds support, inter alia, in paragraph 0020 of the specification. Claim 16 is newly presented and finds support in, inter alia, Fig. 1, and paragraphs 0019 and 0022. Claim 17 is newly presented and finds support, inter alia, in paragraph 0028. No new matter is added. Claims 18-20 are newly presented and find support in, inter alia, paragraphs Figs. 1-3 (illustrating features (e.g., ref. nos. 23, 41) disposed to substantially orthogonal displace bank note). Applicants submit that the recited subject matter is patentable at least due to the dependencies of claims 15-20 to patentable independent claims as discussed below. Moreover, claims 15-20 are patentable over the cited references because none disclose a camera (claim 15), rollers having alignments not parallel to the transport direction disposed on opposite surfaces of a note (claim 16), using inertias in alignment (claim 17), and substantially orthogonal to the transport direction (claims 18-20).

Claim Amendments

In view of the discussion during the interview, claims 1 and 3 have been amended to recite a step of "determining from the detected alignment a deviation of the single bank note from a desired alignment where two edges of the bank note extend parallel to the transport direction of the transport system." This limitation finds support in the specification in, inter alia, paragraphs 0018 and 0020. For example, paragraph 0018 provides that the desired alignment of

the bank note is usually of such a direction that two edges of the bank note extend parallel to the transport direction. In paragraph 0020, Applicants describe devices, such as a microcomputer, which determines a deviation of a detected alignment from a desired alignment. Claim 1 has been further amended to recite a step of “aligning the single bank note in the desired alignment . . . based on the deviation.” Support for this amendment can be found, inter alia, in para. 0020. Claim 3 has been additionally amended to recite means for aligning the single bank note in the desired alignment while the bank note to be aligned is being transported in the transport direction, said means controlled by the device for determining a deviation. Support for this amendment can be found, inter alia, in paras. 0019-0020.

Claims 6, 9, and 10 are amended to conform with the amendments to claim 3. The amendments are supported as cited above with regard to the amendments of claim 3.

Claim Rejections – 35 U.S.C. § 112

Claims 1 and 3 were rejected under 35 U.S.C. § 112, first paragraph as failing to comply with the written description requirement. The Examiner stated that there was insufficient antecedent basis for “the alignment” and “the presence” as recited in the claims. Applicants have amended claims 1 and 3 and submit that the amendment overcomes the rejections on these bases.

Additionally, the Examiner stated that the “specification doesn’t clearly disclose aligning the bank note while it is being transported in the transport direction (i.e. new matter).” Applicants respectfully traverse and submit that the specification satisfies the objective standard for determining compliance with the written description requirement, namely, it “clearly allow[s] persons of ordinary skill in the art to recognize that [the inventors] invented what is claimed.” In re Gosteli, 872 F.2d 1008, 1012 (Fed. Cir. 1989); see also MPEP § 2163.02. In this case, a person of ordinary skill in the art would readily recognize that the Applicants invented the subject matter recited in claims 1 and 3, including “aligning the bank note while it is being transported in the transport direction.”

Paragraphs 0018 and 0019 clearly describe that alignment of the bank note, so that it is transported in parallel to its edges, can be achieved by means setting the bank note in a motion that deviates from the transport direction of the transport system. As further explained in context

of the embodiment described in paragraph 0027 and illustrated in Fig. 3, in one embodiment, an air baffle plate 40 effects the transportation of the bank notes by means of an “air flow moving the bank note along the transport direction T.” (emphasis added.) The air flow is “produced by means of a plurality of openings in the plane of the air baffle plate.” If a deviation of a bank note is determined, valves associated with certain areas of the air baffle plate are opened such that air flows through certain openings in those areas, the “openings directing the air flow in such a way, that this air flow directs the bank note BN’ in a direction deviating from the transport direction T.” Paragraph 0028 describes optionally locking the valves before alignment of the bank note is completed, providing that the alignment of the bank note “then is effected by the existing inertias.”

Applicants submit that a person of ordinary skill in the art would understand the description to describe aligning the bank note while it is being transported in the transport direction because the specification clearly shows and describes that the bank note is in motion in the transport direction T – it has inertia and air flows in addition to the air flow moving the bank note in transport direction T – when additional airflows are used to direct the bank note in a direction deviating from transport direction T when an alignment deviation is detected. There is no description of the note being stops for alignment and indeed, one skilled in the art would understand that the note is not substantially slowed down in the transport direction T.

Applicants submit that a person of ordinary skill in the art would understand the description to describe aligning the bank note while it is being transported in the transport direction for the additional reason that, in embodiments directed to processing of bank notes with a regular and predetermined distance between bank notes, an additional device is described to slow down or stop the bank note. See para. 0030. (Note that this is the only place in the description where stopping the bank note being transported is mentioned.) Since this device is arranged in the area of the air baffle plate, i.e., the area where misalignments are detected and corrected, paragraph 0030 describes that the bank note is being transported in this area.

Applicants submit that “aligning the bank note while it is being transported in the transport direction” is set forth in the description as discussed above. If, after consideration of the above citations to the specification, the Examiner disagrees that the limitation is expressly set

forth, Applicants submit that the limitation is necessarily implied by and/or inherent in the description. Newly added claim limitations can be supported in the specification through implicit or inherent disclosure. See MPEP § 2163 I.B.

Thus, claims 1 and 3 comply with the requirements of 35 U.S.C. § 112 and the rejection is improper. Accordingly, Applicants request that the rejection be withdrawn.

Claim Rejections – 35 U.S.C. § 102

Claims 1, 3-7 and 13 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent 5,140,166 to Gerlier. Applicants respectfully traverse the rejection and submit that amended independent claims 1 and 3 recite subject matter not disclosed by Gerlier.

Claim 1 defines a method for aligning bank notes in a transport system. The method includes the following steps: detecting an alignment of a bank note being transported separately in the transport system, determining from the detected alignment a deviation of the single bank note from a desired alignment wherein two edges of the bank note extend parallel to the transport direction of the transport system, aligning the single bank note in the desired alignment by displacing the single bank note in a direction deviating from the transport direction of the transport system based on the deviation, detecting the alignment of the single bank note during the aligning, said aligning while the bank note to be aligned is being transported in the transport direction, and terminating the aligning, as soon as the single bank note has the desired alignment.

Claim 3, upon which claims 4-7 and 13 depend, defines an apparatus for aligning bank notes in a transport system. The apparatus has a device for detecting an alignment of a bank note being transported separately in the transport system, a device for determining from the detected alignment a deviation of the single bank note from a desired alignment wherein two edges of the bank note extend parallel to the transport direction of the transport system, and means for aligning the single bank note in the desired alignment by displacing the bank note in a direction deviating from the transport direction of the transport system, while the bank note to be aligned is being transported in the transport direction. The means is controlled by the device for determining a deviation. The device for detecting the alignment detects the alignment of the single bank note in the area of the means for aligning and the device for determining a deviation stops the means for aligning, as soon as the single bank note has the desired alignment.

As a result of the claimed configurations, a method and system for aligning a sheet or bank note in a transport system is provided that has advantages including detecting an alignment of a bank note being transported in the transport system, determining a deviation of the bank note from a desired alignment based on the detected alignment. Further, the current alignment is checked during the aligning of the sheet or bank note and aligning is terminated as soon as the desired alignment is reached. Additionally, the interruption of the transporting of the bank note is not required—that is, alignment occurs while the bank note to be aligned is being transported in the transport direction and is effected by displacing the bank note in a direction deviating from the transport direction.

Gerlier fails to disclose at least a step of aligning the single bank note in the desired alignment by displacing the single bank note in a direction deviating from the transport direction of the transport system based on the deviation, as recited in claim 1. Similarly, Gerlier fails to disclose means for aligning a bank note in the desired alignment by displacing the bank note in a direction deviating from the transport direction of the transport system, while the bank note to be aligned is being transported in the transport direction, as recited in claim 3.

In contrast, Gerlier describes various embodiments all having in common a plurality of rollers mounted on one or more shafts, each with axes transverse to the feed direction. See, e.g., Figs. 1, 3, 4, 6 (ref no. 1, shaft; ref. no. 25, feed direction); col. 1 ll. 41-42 (“the axes of the drive rollers extending transversely of the feed direction”); col. 8 ll. 35-37 (“[t]he drive shafts 1 of all pairs of rollers are arranged in juxtaposed relationship and transverse with respect to the feed direction 25”). In such arrangements, the rollers can only impart a moving force in the feed/transport direction to a paper in contact with the rollers and, unlike the claimed arrangement, cannot displace a bank note in a direction deviating from the transport direction.

Further, Gerlier teaches that in order to align a misaligned note, the note must be stopped in order to rotate the bank note. See, e.g., col. 7 ll. 35-39 (sheet braked under one roller creating pivot point about which sheet twists); col. 9 ll. 49-51 (sheet twists about pivotal point beneath braked drive roller). (Although Gerlier states that the speed of a stepping motor may be merely reduced, col. 9 l. 45, this feature is not enabled. It will be understood that unless the sheet is stopped or substantially stopped, edges of the sheets will move out of range of the light sensors

prior to complete de-twisting of the sheets. Gerlier fails to enable a person of ordinary skill in the art to make and use an embodiment in which the speed of the stepping motor is reduced for purposes of effecting the necessary pivot.) Such stopping of the note is in contrast to aligning the bank note while it is being transported in the transport direction as recited in claims 1 and 3. This is advantageously taught, for example, in paragraph 0027 and in Fig. 3 of the present application as discussed above with regard to the 35 U.S.C. § 112 rejection.

Moreover, Applicants submit that the pivot taught by Gerlier is not the same as or analogous to displacing the single bank note in a direction deviating from the transport direction, as recited, because pivoting is not a displacement in any direction, much less in a direction deviating from the transport direction.

Thus, Gerlier fails to disclose each and every element of independent claims 1 and 3 and dependent claims 4-7 and 13. Accordingly, Applicants request that the rejection be withdrawn.

The rejection of claim 4 is improper for the additional, independent reason that Gerlier fails to disclose a device for detecting the alignment which detects a two-dimensional area. The Examiner cites Fig. 6 as disclosing this feature. Applicants respectfully disagree. At best, Gerlier merely discloses linear arrays of light sensors/barriers disposed to sequentially detect edges of the sheet (i.e., a one-dimensional aspect). See, e.g., col. 9 ll. 33-35 (“[a]s soon as the front longitudinal edge of the sheet 24 has been fed as far as the light sensors 46, the beam of light 48 of at least one of the two selected light sensors 46 is impaired”); col. 6 ll. 35-36 (“the front longitudinal edge of the sheet 24 covers adjacently disposed light barriers 29”). Applicants submit that detecting an edge of a sheet is quite different from the detecting of a two-dimensional area as recited in claim 4.

The rejection of claim 6 is improper for the additional reason that Gerlier fails to disclose at least one roller, which aligns the single bank note by displacing it in a direction deviating from the transport direction. As discussed above, no roller disclosed in Gerlier is disposed to move the bank note in a direction other than the transport direction.

Claim Rejections – 35 U.S.C. § 103(a)

Claims 2, 10, 11 and 14 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 5,140,166 to Gerlier in view of U.S. Patent 5,755,437 to Ek. Applicants

respectfully traverse the rejection and submit that claims 2, 10, 11 and 14 recite subject matter that is neither disclosed nor suggested by the combination of the cited prior art.

Claims 2, 10, 11 and 14 depend from claims 1 or 3. Thus, the comments made above with respect to Gerlier apply equally to claims 2, 10, 11 and 14.

Ek is provided allegedly to disclose features of the dependent claims. Applicants submit that Ek fails to disclose that which is asserted in the Office Action. Moreover, Ek fails to cure the deficiencies of Gerlier.

Ek relates to an arrangement including object straightening and repositioning means which straighten or reposition objects as they pass sequentially along a transport path. Abstract. Ek fails to teach or suggest an arrangement or method whereby aligning the single bank note in the desired alignment, wherein two edges of the bank note extend parallel to the transport direction, by displacing the single bank note in a direction deviating from the transport direction of the transport system based on the deviation, as recited in independent claims 1 and 3. Ek does disclose repositioning an already aligned bank note in a direction. See Fig.1 (illustrating repositioning of note 20 from position A' leftward to position A as described in col. 3 ll. 42-64). However, with respect to realigning notes, Ek teaches that "horizontal skew" is corrected by driving the bank note in the direction of transport. See, e.g., Fig. 2 (illustrating driving the bank note along arrow 21, parallel to transport direction "B"); col. 3 l. 65 – col. 4 l. 10 (de-actuation of relay causes the left end of bank note to be driven forward); Fig. 5 (illustrating moving note 44 in transport direction at different velocities, e.g., V_0 and $V_0 + \Delta V_0$). Thus, the combination of Gerlier and Ek fails to teach or suggest each and every element of claims 2, 10, 11 and 14. Accordingly, Applicants request that the rejection be withdrawn.

Claims 8, 9, and 12 were rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,140,166 to Gerlier in view of U.S. Patent 3,918,706 to Craft.¹ Applicants

¹ The Office Action stated at page 4 that "[c]laims 8, 9, and 13 are rejected as stated in the office action dated 12/31/2007." Applicants note that in the present Office Action, claim 13 was rejected on page 3 together with claims 1 and 3-7 and that, while the Office Action Summary indicates that claim 12 was rejected, the Detailed Action makes no reference to claim 12. Additionally, in paragraph 9 of the Office Action dated 12/31/2007, claims 8, 9, and 12 were together rejected in view of Gerlier and Craft. Thus, Applicants infer that that the collective reference to claims 8, 9, and 13 on page 4 is a typographical error and that the Examiner intended claims 8, 9, and 12.

respectfully traverse the rejection because the combination of prior art fails to disclose or suggest each and every feature of claims 8, 9, and 12.

Claims 8, 9, and 12 depend from claim 3. Thus, the comments made above with respect to Gerlier apply equally to claims 8, 9, and 12. Craft is directed to a pneumatic sheet transport and alignment mechanism that utilizes an edge guide. Craft fails to cure the deficiencies of Gerlier. Craft fails to teach or suggest aligning the single bank note in the desired alignment by displacing the single bank note in a direction deviating from the transport direction based on the deviation. In contrast, Craft merely discloses moving a sheet in the transport direction so that it contacts a guide. Thus, the combination of Gerlier and Craft fails to disclose or suggest each feature of claims 8, 9, and 12. Accordingly, Applicants request that the rejection be withdrawn.

In view of the above, all objections and rejections have been sufficiently addressed. Applicants submit that the application is now in condition for allowance and requests that claims 1-20 be allowed and this application passed to issue. In the event that this paper is not timely filed, the Applicants respectfully petition for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Deposit Account No. 02-2135.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by telephone, the Applicants' undersigned attorney at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

Respectfully submitted,

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